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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/370,135

08/09/99

SIVAVEC

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RD-26.328

IM22/0625

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EXAMINER

ZIMMER, M

ART UNIT

PAPER NUMBER

1712

DATE MAILED:

6
06/25/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

09/370,135

Applicant(s)

SIVAVEC ET AL.

Examiner

Marc S. Zimmer

Art Unit

1712

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 May 2001.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 and 33-52 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5, 6, 13, 33-35, 37, 38, 45 and 50-52 is/are rejected.
- 7) ☒ Claim(s) 4, 7-12, 14-17, 36 and 39-49 is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

- 15) ☐ Notice of References Cited (PTO-892)
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 17) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 18) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 19) ☐ Notice of Informal Patent Application (PTO-152)
- 20) ☐ Other: _____

Specification

The Examiner had previously objected to the Specification on the grounds that the formulas representing different incarnations of the co-polymeric coating material on pages 6 and 7 were not sufficiently descriptive insofar as the variables m, n, x, and y, had not been defined. However, the Examiner failed to note that a structural description of, for, example, the polyester elastomer, polyalkylene oxide diimide diacid compound, and polyalkylene terephthalate was available in U.S. Patent # 5595586 which had been incorporated by reference. Further, the Applicants have amended the Specification to formally incorporate by reference a full description of the silicone polyetherimides. Finally, the Applicants have obtained from the disclosures of these references numerical ranges for each of the aforementioned variables and added them to their disclosure. Consequently, the objections are hereby withdrawn. Likewise, the rejections under U.S.C § 112 of the corresponding claims (14-17 and 46-49) that recite these limitations are also withdrawn.

Claim Rejections - 35 USC § 112

Claims 5 and 37 were rejected in the Examiner's previous Office action because the word partition, it was believed, could be construed several ways. In response, the Applicants have revised claims 5 and 37 to state that the film is capable of absorbing a quantity of the analyte that is dictated by the value of the partition coefficient with respect to said analyte substance. The connotations of this claim are substantially more precise hence the rejections of these claims are hereby withdrawn.

Claims 33-49 were rejected in the previous Office action because the phrase, "...the polymeric film adsorbs the target compound and changes *operational sensitivity* of the sensor..." in the independent claim seemed to imply that the sensor device became more- or less efficient as uptake of the analyte progressed, a concept for which there was no support in the Specification. The Applicants have since modified claim 33 to state that a change in the characteristic response of the sensor element is elicited as the film adsorbs the analyte. This account is consistent with the supporting disclosure thus the rejections over these claims are hereby withdrawn.

Claim Rejections - 35 USC § 102

The original claims were directed to a sensor comprising a substrate onto which a polymer film containing hard- and soft segments had been applied. It was the Examiner's position that, because there was no provision for a signaling or detection means, the claims were merely reciting different embodiments of a polymer-coated substrate and, for the purposes of evaluating the instant invention against the prior art, were treated accordingly. In response, claim 1 has been amended to include a sensing element thus making the currently-disclosed invention patentably distinct from the polymer materials reported in Miyoshi et al., Ozawa, Steenblock et al., Glans, and Hawkins.

Claim Rejections - 35 USC § 103

The rejection over Rojstaczar is hereby withdrawn for the reason provided in the above section.

Claims 1-3, 5-6, 13, 33-35, 37-38, 45, 50-52 are rejected under 35 U.S.C. 103(a) as being unpatentable over McGill et al., U.S. Patent # 5,880,552 in view of Litwin, U.S. Patent # 6,056,805 for the reasons offered in paper #4.

In the Examiner's earlier Office action, these claims had been rejected over the aforesaid references in addition to Grate et al. in Sensors and Actuators B (1991), 85-111. However, the Grate reference was invoked only to rationalize Litwin's observation that the hydrocarbon polymers containing high polystyrene content were inferior sorbents. Indeed, the Grate reference does not provide any indispensable teachings as all of the essential features are retrieved from '552 and '805.

As for claims 50-52, a description of a SAW sensing device having a piezoelectric substrate is provided in column 4, lines 9-26. The Applicants admit on page 1 of the Specification that these devices operate by propagating mechanical oscillations of varying frequency when subjected to a stimulus (such as the application of a force on the crystal due to the uptake of chemical vapor by a polymer coated on the device).

Response to Arguments

Applicant's arguments filed May 18, 2001 have been fully considered but they are not persuasive.

One of the foundations of the Applicants' arguments is that the sensor device disclosed by McGill does not satisfy the general configuration of their invention. That is, whereas McGill stipulates that a diamond-like carbon layer is first disposed on the substrate prior to application of the adsorbent polymer film, the Applicants coat said film

directly onto the substrate. However, there is nothing in the Specification that would indicate that an intervening layer is expressly excluded. Furthermore, the Specification provides absolutely no working examples that describe the construction of such a sensor device.

The Applicants further contend in the second paragraph of page 18 of their response that Litwin does not suggest that the polymer sorbents disclosed therein should be employed in the manufacture of sensing devices for quantitative analyses of a surrounding gaseous environment. They continue with the assertion that the McGill reference is similarly lacking for its failure to teach the utilization of a polymer having hard and soft domains as the adsorbing material. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). The Examiner provided ample motivation for substituting the polyalkylene sorbents disclosed by McGill with the adsorbent copolymers taught by Litwin in page 9, paragraph 1 of his earlier Office action. Moreover, one skilled in the art would fully appreciate that sorbents that are regenerated with some facility (column 4, lines 60-61) and are able to maintain their structural integrity such that surface area is not deleteriously affected at high vapor loadings are especially useful in sensing applications where efficiency (column 3, lines 66-67 through column 4, lines 1-2) and the potential for recycling are paramount.

Allowable Subject Matter

Claims 4, 7-12, 14-17, 36, 39-44, and 46-49 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Litwin does not reveal the development of any sorbent materials other than those containing hydrocarbon-based blocks.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marc S. Zimmer whose telephone number is 703-605-1176. The examiner can normally be reached on Monday-Friday 8:00-4:30.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Dawson can be reached on 703-308-2340. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

Dr. Marc S. Zimmer
(703) 605-1176
June 19, 2001

A handwritten signature in cursive script, reading "Robert A. Dawson".

Robert Dawson
Supervisory Patent Examiner
Technology Center 1700